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AVERAGE AND PROBABILITY.

77. Proposed by J. O. MAHONEY, B. E., M. Sc., Professor of Mathematics and Science, Cooper Training School, Carthage, Tex.; and ELMER SCHUYLER, Annapolis, Md.

A and B are two inaccurate arithmeticians whose chance of solving a given question correctly is $\frac{1}{8}$ and $\frac{1}{12}$ respectively; if they obtain the same result, and if it is 1000 to 1 against their making the same mistake, find the chance that the result is correct. [*From Hall and Knight's Algebra.*]

78. Proposed by CHAS. E. MYERS, Canton, O.

Two witnesses, A and B, both make the statement that an event happened in a particular way (two ways being possible). Find the probability of the truth of the statement.

79. Proposed by the late ENOCH BEERY SEITZ.

Two equal spheres touch each other externally. If a point be taken at random within each sphere, show that (1) the chance that the distance between the points is less than the diameter of either sphere is $\frac{13}{35}$, and (2) the average distance between them is $\frac{11}{5}r$. [This is Problem 5835, *Educational Times*, of London.]

*** Solutions of these problems should be sent to B. F. Finkel not later than Sept. 10.

BOOKS AND PERIODICALS.

Bibliography of American Arithmetics. By J. M. Greenwood, Superintendent of Schools, Kansas City, Mo., and Artemas Martin, A. M., Ph. D., LL. D., Geodetic Survey Office, Washington, D. C. Issued by the National Bureau of Education.

This is a very complete bibliography of the Arithmetics published in this country from the earliest time down to the present. Not only the names of the book, the author and the publishers are given, but also a brief description of each book. B. F. F.

A Primer of the Calculus. By E. Sherman Gould, Member American Society of Civil Engineers. Second edition, revised and enlarged. 16mo. Cloth, 122 pages. Price, 50 cents. New York: D. Van Nostrand Company.

This work is a development of the infinitesimal method of the calculus. It is restricted in its treatment to the absolute rudiments of the science, being intended for practical use rather than for class-room work. The favorable reception of the first edition has made it necessary to bring out a second edition which the author has somewhat enlarged and improved. B. F. F.

The Ranger. An Instrument Invented and Patented by Francis J. Baylton, Extra Master, and A. Huddart Armstrong, Engineer, for the use of Seamen while Navigating their Vessels off the Land. S. E. Lees, Printer and Stationer, 81 Clarence Street, Sydney, Australia.

In this pamphlet of 16 pages, is described "The Ranger," an instrument for measuring triangles, that at once shows the value of the sides and angles of any triangle laid off on it, without the least calculation being necessary. The instrument is specially adapted to the use of seamen when in sight of land. It is very simple in construction and accurate in its results. B. F. F.

School Algebra with Exercises. By George Egbert Fisher, M. A., Ph. D., and Isaac J. Schwatt, Ph. D., Assistant Professor of Mathematics in the University of Pennsylvania. 8vo. Cloth, 406 pages. Price, \$1.00. Philadelphia : Fisher and Schwatt.

This book retains the distinctive features of the authors' Text-Book of Algebra, Part I., but written with a view to the needs of younger students. "The aim has been to make the transition from ordinary Arithmetic to Algebra natural and easy. Nothing has been slighted or evaded, and all difficulties have been honestly faced and explained. Special attention has been paid to making clear the reason for every step taken. Each principle is first illustrated by particular examples, thus preparing the mind of the student to grasp the meaning of a formal statement of the principle and its proof. . . . The importance of mental discipline to every student of Mathematics has also been fully recognized. On this account great care has been taken to develop the subject in a logical manner. Rigorous, but, as a rule, simple proofs of all principles have been given." The book is in every detail one of the highest merit and is worthy the patronage of all teachers of Algebra.

B. F. F.

The American Monthly Review of Reviews. An International Illustrated Monthly Magazine. Edited by Dr. Albert Shaw. Price, \$2.50 per year in advance. Single numbers, 25 cents.

The Cosmopolitan. An International Illustrated Monthly Magazine. Edited and published by John Brisben Walker. Price, \$1.00 per year in advance. Single numbers, 10 cents. Irvington-on-the-Hudson.

ERRATA.

In the last paragraph of "Note on Right Triangles," THE AMERICAN MATHEMATICAL MONTHLY, Vol. VI, No. 3, pp. 91, 92, we find, "A given area, or a given perimeter, can belong to but one prime right-angled triangle."

How will Professor Shedd reconcile the two prime right triangles whose respective sides are 12, 35, 37, and 20, 21, 29? Area=210= $\frac{1}{2} \times 12 \times 35 = \frac{1}{2} \times 20 \times 21$.

M. A. GRUBER.

On pages 138 and 139 of THE AMERICAN MATHEMATICAL MONTHLY (May), there is a misprint which may be corrected easily by the reader. It is obvious that the tangent of the angle included by the two lines is

$$\frac{\frac{n}{m} \cdot \frac{r}{\sqrt{R^2 - r^2}} + \frac{n_1}{m_1} \cdot \frac{r}{\sqrt{R^2 - r^2}}}{1 - \frac{n}{m} \cdot \frac{n_1}{m_1} = \frac{r^2}{R^2 - r^2}},$$

so that the condition for a right angle (formula 10, pp. 138 and 139), is

$$\frac{n}{m} \cdot \frac{n_1}{m_1} = \frac{R^2 - r^2}{r^2}.$$

A. EMCH.